UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 94246

ABANDONED RR SOUTH OF CEDAR

OVER THE

MISSISSIPPI RIVER

DISTRICT 5 - HENNEPIN COUNTY, CITY OF MINNEAPOLIS

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 3512 (CEI 18A)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure unit inspected at Bridge No. 94246, Pier 4, was found to be in good condition below water with no defects of structural significance. The steel sheeting encasement exhibited moderate surface corrosion with no appreciable loss of section. The timber fender system protecting Pier 4 was in fair to poor condition with some areas of failed connections and impact damage. The channel bottom was stable with no evidence of significant scour or appreciable changes since the previous inspection.

INSPECTION FINDINGS:

(A) The steel sheeting encasing the concrete pier below water displayed a uniform 1/8 inch layer of surface corrosion, random 1 inch diameter rust nodules, and random 1/8 inch deep pitting.

(B) The timber fenders showed signs of moderate decay and rot at the waterline along with some failed connections and impact damage.

RECOMMENDATIONS:

(A) Depending on the proposed future use of the structure, consideration can be given to replacing the deteriorated and damaged timber walers and fender components during normal maintenance operations.

(B) Reinspect the submerged substructure unit at the normal maximum recommended (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Daniel G. Stromberg

Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.

Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 94246

Feature Crossed: Mississippi River

Feature Carried: Abandoned RR South of Cedar

Location: District 5 - Hennepin County, City of Minneapolis

Bridge Description: The superstructure consists of a steel deck truss over seven spans. The superstructure is supported on reinforced concrete abutments and piers. Plans indicate that the pier and abutment footings are spread footings bearing on sandstone. The abutments and piers are numbered 1 through 8 from east to west.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker, P.E.

Dive Team: Clayton G. Brookins, Michelle D. Koerbel

Date: October 1, 2002

Weather Conditions: Sunny, ± 70^{o} F

Underwater Visibility: ± 0.5 Feet

Waterway Velocity: ± 2 f.p.s.

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Pier 4

General Shape: The pier consists of a rectangular reinforced concrete shaft encased in an oblong rectangular steel sheet pile construction filled with concrete. The sheet piling was faced with a timber fender system above the waterline.

Maximum Water Depth at Substructure Inspected: Approximately 15.5 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the steel sheeting pile fender system on the downstream end of Pier 4.

Water Surface: The waterline was approximately 10.8 feet below reference. Waterline Elevation = 726.2.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 7

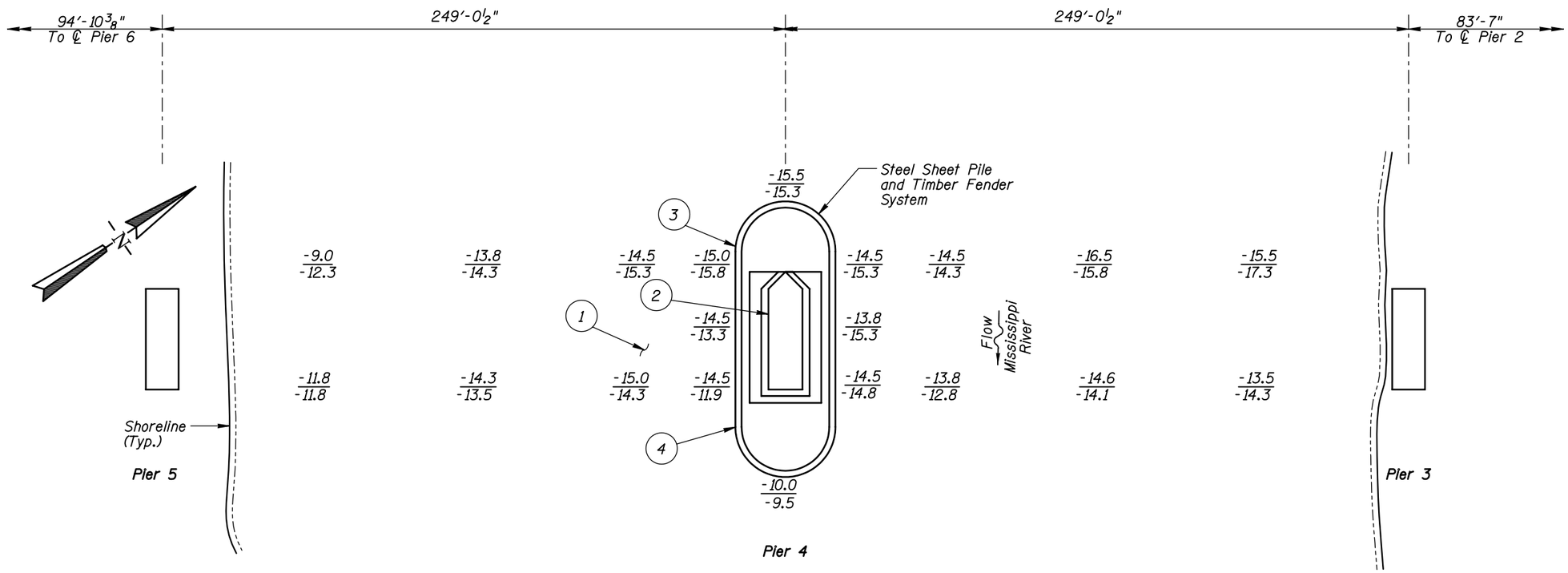
Item 61: Channel and Channel Protection: Code 8

Item 92B: Underwater Inspection: Code B/10/02

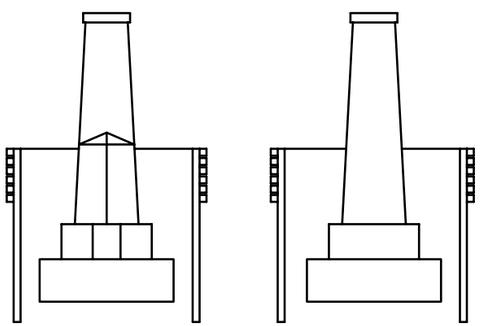
Item 113: Scour Critical Bridges: Code C/95

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

_____ Yes __X__ No



SOUNDING PLAN



TYPICAL END VIEW OF PIER 4

INSPECTION NOTES:

(1) The channel bottom material consisted of sand, gravel and areas of riprap, 3 feet diameter and smaller, with 2 inches of probe rod penetration.

(2) The above water concrete was in satisfactory condition with random minor section loss having up to 2 inch penetrations, random map cracking with efflorescence and rust staining.

(3) The steel sheeting encasing the concrete pier below water displayed a 1/8 inch layer of surface corrosion, random 1 inch diameter rust nodules, and random 1/8 inch deep pitting.

(4) Fender system timber whalers were in fair to poor condition with some areas of decay and rot at the waterline and several failed connections. Moderate impact damage was evident in several locations around the pier perimeter.

GENERAL NOTES:

1. Pier 4 was inspected underwater.
2. At the time of inspection on October 1, 2002 the waterline was located approximately 10.8 feet below the top of the steel sheet pile fender system at the downstream end. This corresponds to a waterline elevation of 726.2 based on the previous report dated September 17, 1997.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

Legend

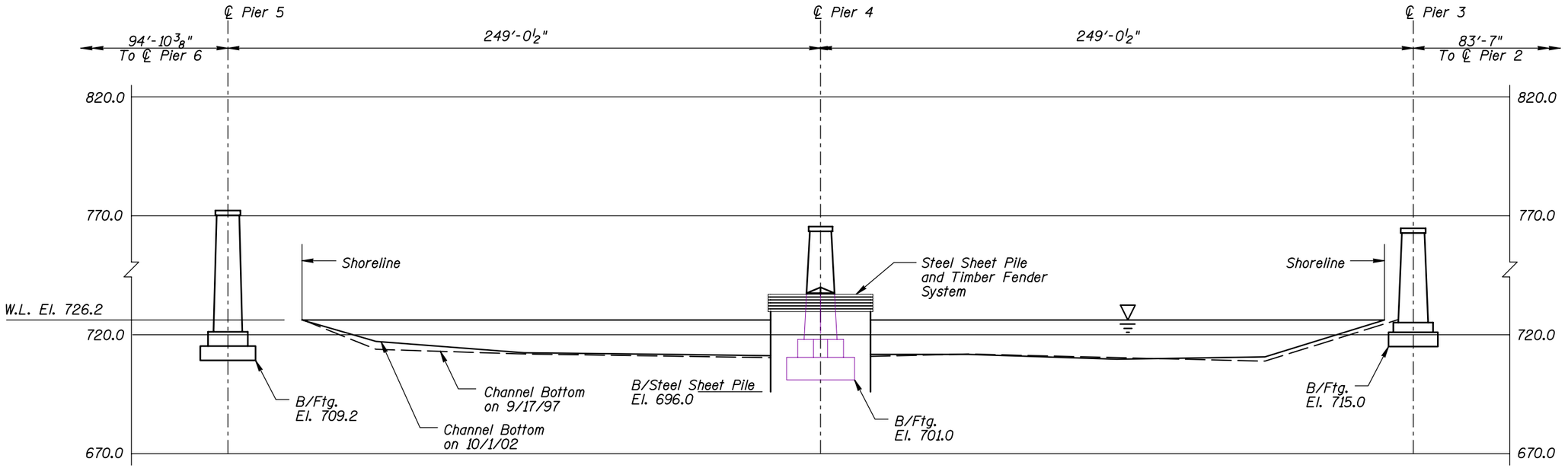
-2.0	Sounding Depth from Waterline (10/1/02)
-5.2	Sounding Depth from Waterline (9/17/97)

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

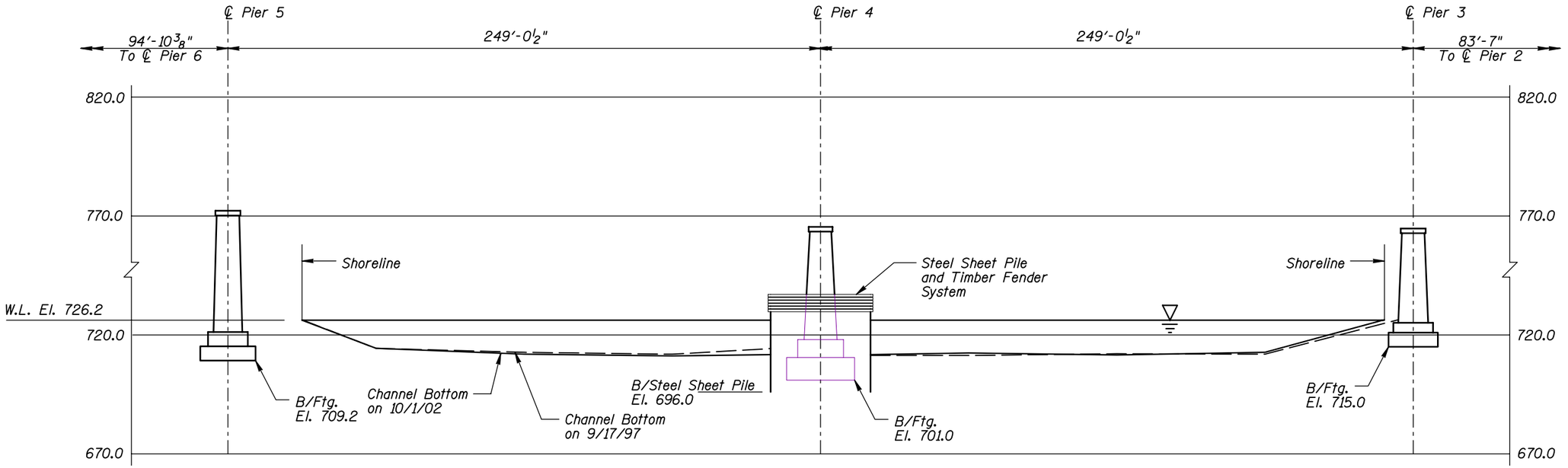
STRUCTURE NO. 94246
OVER THE MISSISSIPPI RIVER
DISTRICT 5, HENNEPIN COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: OCT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 3512018A		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

MINNESOTA
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UNDERWATER BRIDGE INSPECTION

STRUCTURE NO. 94246
OVER THE MISSISSIPPI RIVER
DISTRICT 5, HENNEPIN COUNTY

UPSTREAM AND DOWNSTREAM FASCIA PROFILES

Drawn By: PRH	**COLLINS ENGINEERS, INC.**	Date: OCT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: 1"=50′
Code: 3512018A		Figure No.: 2

Photograph 1. Overall View of the Structure, Looking Southeast.

Photograph 2. View of Pier 4, Looking Southeast.

Photograph 3. View of Pier 4, Looking Northwest.


Photograph 4. View of the Damaged Fender System of Pier 4, Looking South.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: October 1, 2002
ON-SITE TEAM LEADER: Shirley M. Walker, P.E.
BRIDGE NO: 94246 WEATHER: Sunny, "70° F
WATERWAY CROSSED: Mississippi River
DIVING OPERATION: X SCUBA SURFACE SUPPLIED AIR
OTHER
PERSONNEL: Clayton G. Brookins, Michelle D. Koerbel
EQUIPMENT: Scuba, Boat, U/W Light, Scraper, Sounding Pole, Lead Line, Probe Rod, Camera
TIME IN WATER: 10:50 A.M.
TIME OUT OF WATER: 11:15 A.M.
WATERWAY DATA: VELOCITY "2 f.p.s.
VISIBILITY "0.5 foot
DEPTH 15.5 feet at Pier 4
ELEMENTS INSPECTED: Pier 4
REMARKS: Overall, the steel sheet pile encasement construction around Pier 4 was in good condition with uniform moderate corrosion, 1/8 inch scale delamination, and random 1 inch diameter rust nodules with 1/8 inch pitting. The channel bottom was stable with no evidence of significant scour. Above water, the timber fender system was in fair to poor condition with several areas of decay/rot, impact damage, and failed connections.

FURTHER ACTION NEEDED: X YES _____ NO

Depending on the proposed future use of the structure, consideration can be given to replace the deteriorated and damaged timber walers and fender components during normal maintenance operations.

Reinspect the submerged substructure unit at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 94246
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The Mississippi River

INSPECTION DATE October 1, 2002

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.		MAXIMUM DEPTH OF WATER	PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER (TIMBER FENDERS)	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
	UNIT DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 4	15.5’	7	7	N	9	5	7	8	N	N	N	8	N	7	6	7	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, the steel sheet pile encasement construction around Pier 4 was in good condition with uniform moderate corrosion, 1/8 inch scale delamination, and random 1 inch diameter rust nodules with 1/8 inch pitting. The channel bottom was stable with no evidence of significant scour. Above water, the timber fender system was in fair to poor condition with several areas of decay/rot, impact damage, and failed connections.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.